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IN MODERN THOUGHT

SPRING **1948**

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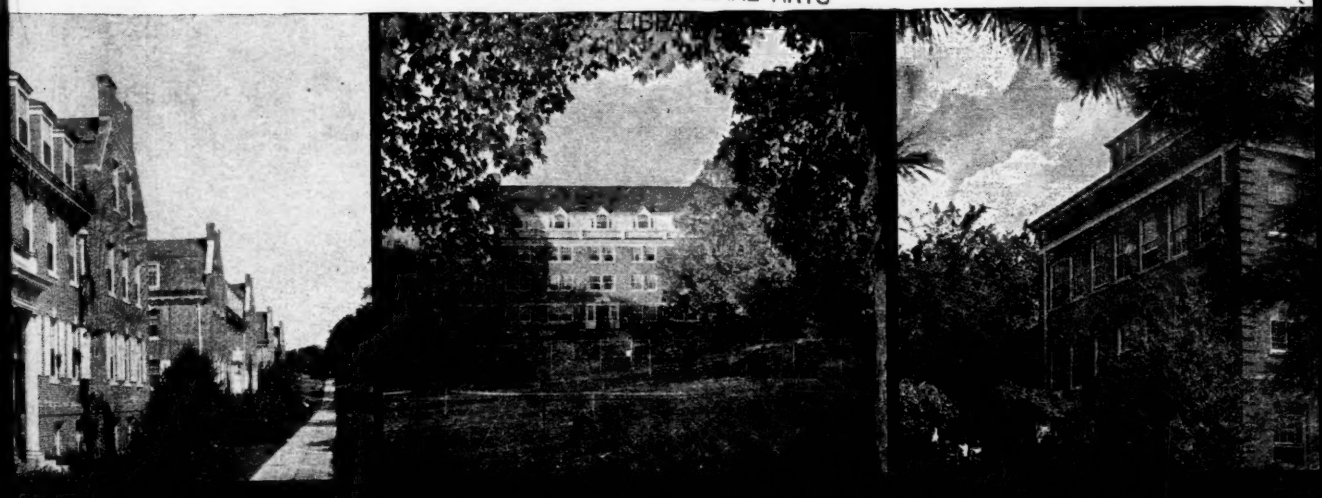

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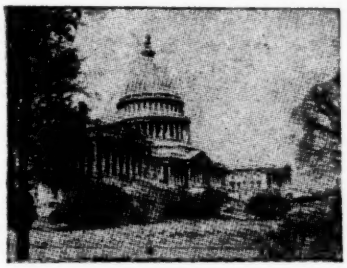
MAIN CURRENTS IN MODERN THOUGHT

A co-operative journal to promote the free association of those working toward the integration of all knowledge through the study of the whole of things, Nature, Man, and Society, assuming the universe to be one, dependable, intelligible, harmonious.



VOL. 6 NO. 1 SPRING 1948 $3 A YEAR

"Ah, but a man's reach should exceed his grasp, or what's a heaven for?" — BROWNING

Editor and Publisher: F. L. KUNZ; Associate E. B. SELLON.
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THE FOUNDATION FOR INTEGRATED EDUCATION

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Jacob L. Moreno, M.D., is the pioneer in psychodrama and group psychotherapy. He is Physician-in-Charge at Beacon Hill Sanitarium, Beacon, New York, and the founder of *Sociometry*, a journal of interpersonal relations. We quote his article in its entirety from the *Journal of Educational Psychology*, May, 1946, with kind permission of author and publishers.

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Dr. Carlson is Assistant Professor of English, University of Connecticut.

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Dr. Melvin is a Theoretical Physicist and Associate Professor of Metallurgy, Columbia University.

THE CURRENT COLLEGE CONTROVERSY ..... Stephen M. Corey

MAIN CURRENTS IN MODERN THOUGHT is published quarterly to call attention to significant contributions to learning currently being made by leading workers in the multiple fields into which knowledge has come to be classified. It relates these advances to each other and to the classical and contemporary views of Eastern, European and American thinkers. It is designed to save time for the reader by providing a vantage-ground from which the whole world of knowledge may be surveyed and kept in proportion as it moves toward integration. Its editors assume that the principles of art, the universals of philosophy, the laws of Nature and Man as formulated by science, and the truths of comparative religion, can be orchestrated into a harmonic, meaningful, ethical body of teachings which can be and should be made the central core of curricular study in the educative process at all levels of development. In condensing text, square brackets [ ] indicate editorial interpolation. Three dots . . . in the text indicates a word, phrase or passage omitted in the interest of brevity or clarity. Other usages are standard. $3.00 a year. Foreign $3.50. Contributors to MAIN CURRENTS enjoy full liberty of opinion and of expression in these pages. Copyright 1948, by F. L. Kunz, Port Chester, New York, to whom all communications regarding MAIN CURRENTS IN MODERN THOUGHT should be addressed. Entered as second class matter April 13th, 1946, at the post office at Port Chester, New York, under the Act of March 3rd, 1879.

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THE FOUNDATION FOR INTEGRATED EDUCATION

Since there has been an inordinate (and much regretted) delay in the appearance of this issue of MAIN CURRENTS, we should assure subscribers that they have not missed any copies. The last previous issue was dated October, 1947, and closed Volume V. The present number is 1 of Volume VI. It is expected that Summer, Autumn, and Winter issues will appear in those seasons.

As MAIN CURRENTS is now serving as the journal of the Foundation for Integrated Education, more than usual emphasis should be placed upon the freedom of expression enjoyed by all writers in these pages, including the Editor. None of these opinions commit the Foundation, which is responsible only for such official expressions as it may occasionally publish, and so designate.

The journal will continue to specialize in two fields. We shall publish matter of special philosophical importance, particularly such contributions as are valuable in knitting together fields of experience and of learning. In this present number, for example, we have the privilege of including a summary description of a metric method developing in sociology, an example of cross-connections which are coming into curricula and progressing integration. We shall also publish a variety of materials on educational methods and problems involved in making headway with integration in actual programs of study.

Developments of course are proceeding on scores of campuses. Some of these tie together groups of closely related subjects, such as the arts among themselves, or the sciences. Others treat special aspects of human life, such as culture, chronologically. Many courses have sociology as the nexus. Reports of these and many other efforts, whether intended to effect limited or overall integration, will be welcome. The object is to pool experience in this one important area with which the Foundation is concerned.

THE TASK

Justice Felix Frankfurter recently wrote in the New York *Times*: "That our universities have grave shortcomings for the intellectual life of this nation is by now a commonplace." President Truman's Commission on Higher Education for American Democracy has said that "the crucial task of nigher education is to provide a unified general education." Over and over individuals and organizations are raising the great question of our age: *How do we educate in a new way for our survival in freedom?*

Many institutions and individuals have been and are at work upon various facets of the need of this hour, a general education that is unifying and that will confirm values for creative living in an atomic age. There has been, however, no national agency with the single and paramount determination to bring the required integrative forces to bear upon the curriculum of American education, although leaders in education have for some time realized that these efforts require nation-wide coordination.

It is for the accomplishment of such a task that the Foundation for Integrated Education has been established by educators and laymen.

The Foundation undertakes to record and disseminate the invaluable exploratory work contributing to integration already proceeding on many campuses. It furthers the widest possible utilization of these gains. It believes that from such a directed pooling of intellectual leadership, experience and knowledge will inevitably develop substantial progress towards bringing American education "decisively to grips with the world-wide crisis of mankind."

Through democratic and cooperative processes, the Foundation promotes the search for a new consensus of unifying knowledge, based on concepts essential to men and societies determined to retain and enlarge human integrity and freedom. Many people believe that such a new consensus will: (1) constitute a major unifying force in individual life and in society; (2) increasingly document and validate a spiritual rather than a crassly materialistic philosophy of life; (3) provide the individual with functioning ethical and moral principles derived from personal convictions rooted in a unity of all knowledge with religious concepts; (4) encourage the fearless pursuit of truth as the bulwark of a free Democratic Society. The attention and support that the announcement of the Foundation's purposes and program have immediately aroused is indication of the widespread demand there is for the services it offers.

AN IMMEDIATE AND PRACTICAL PROGRAM

In order to fulfill the foregoing objectives as quickly as possible, the Foundation for Integrated Education has initiated a program organized as follows:

I. STUDIES AND PROGRAM ON INTEGRATION

- Department 1. Curriculum Studies Board
- Department 2. Local and National Workshops
- Department 3. Special Projects Directed Towards Integrative Studies
- Department 4. Publication
- Department 5. Consultative Service to Individuals and Institutions

II. ADMINISTRATION

- Department 6. Business Management
- Department 7. Funding
- Department 8. Public Relations

PURPOSE OF THE CURRICULUM STUDIES BOARD

The Curriculum Studies Board is the heart of the Foundation. Broadly conceived, its work is primarily concerned with gathering source data affirmed by scholars as valid and essential to a functioning modern philosophy of the good life. Its specific duties are to gather, screen, evaluate and make available materials and techniques for the development of a suitable framework for curriculum integration and revision on campuses.

The Board examines and disseminates materials drawn from all fields of learning and experience, on current integrative programs, proposed approaches, experimental studies and specific problems in the field of integration arising from institutions and individual scholars. This examination has as its objects:

1. Assembling, classifying and cataloging as much detailed information as possible on all efforts towards curriculum integration.
2. Analyzing, isolating and comparing specific elements in approach, content, and method in these efforts at integration.
3. Identifying existing gaps in the total field of integration.
4. Suggesting projects that can attempt to fill such gaps, and facilitating the work of these projects in any way possible to the Foundation.
5. Attempting to develop standards for the evaluation of integrative programs.
6. Preparing from time to time its own findings on integration.

The Board is building up a special repository of literature of significance to its work, and a library of selected instructional material for integrative programs. These will include data on teaching methods, slides, motion pictures, other visual media, special recordings, and other resources. Materials assembled by the Board will be available to visiting scholars, to local and national workshops, and/or to institutions with which the Foundation has consultative service arrangements.

COMPOSITION OF THE CURRICULUM STUDIES BOARD

In order to discharge adequately the foregoing functions, it is obvious that the Board must be comprised of qualified scholars from the various fields of learning. The determination of the fields to be represented and the selection of individuals from them is among the first responsibilities of the Director of Studies and Programs and of the initial Board Staff. It is expected that by the end of the first year of work the Curriculum Studies Board may approximate fifteen scholars, but the number will be determined by the developing needs.

OPERATION OF THE CURRICULUM STUDIES BOARD

The Foundation proposes that the development of detailed operational policies, procedures, criteria, etc. shall be performed by the Director of Studies and Programs, the Coordinator of the Curriculum Studies Board and by the three full-time members, or Fellows, of this Board. This is the work of Stage One, or the Developmental State, of the Curriculum Studies Board's program. Fellows will be qualified persons who are preferably on sabbatical or other leave from their universities. During its first year, the aforementioned staff and fellows, with some twelve Associate Members, are to meet at regular intervals. These Associates also are to be qualified scholars, from the fields of the natural sciences, social sciences, language and literature and the arts, or as to be determined more precisely by the foregoing staff.

The Foundation is initiating a series of special projects bearing on aspects of integration. The first of this series is the following research project in the measurement of integrative studies as relating to mental health.

THE MENTAL HEALTH STUDIES PROJECT

The Mental Health Studies Project of the Foundation is to examine scientifically the bearing of a program or programs of integration upon mental health. The study is planned in two stages:

Stage One.
The Planning Stage, in which the validity, objectives, nature, and criteria of the project, and the requisite test and measurement program will be determined.

Stage Two.
The Operational Stage, in which students in a specific program or programs of integration at accredited institutions will be tested over a three year period as regards the effect of integration upon mental health.

This project is to be administered by a special Board; known as the Mental Health Studies Board, established for this task and representing appropriate fields of knowledge and qualified, experienced scholars.

Among those who have agreed to serve on this Board to date are: *Dr. Leopold Bellak*, Associate in Psychiatry, New York Medical College, who is Coordinator of the Board; *Dr. O. Hobart Mowrer*, Institute of Human Relations, Harvard University; *Dr. Lawrence K. Frank*, Director of the Caroline Zachary Institute for Human Development, and an Executive of the International Committee for Mental Hygiene; and *Mr. Roger C. Gay*, Assistant Dean, New York Medical College.

LOCAL AND NATIONAL WORKSHOPS

Meetings of educators and laymen interested in integration have been held under Foundation auspices in several metropolitan cities in the United States. The Foundation is sponsoring similar continuing meetings on integration in as many other cities as possible. Active groups resulting from these gatherings are being set up. The Foundation functions as a clearing house for the mutual exchange of information on, and results of, such activities.

These meetings serve to develop local workshops that will intensify efforts at integration in practical and

specific ways for all divisions of its programs. The workshops constitute channels through which thinking on integration flows out to communities and campuses, as well as flows back to the Foundation as a center for sharing the gains.

Information on meetings, preliminary to workshops, which have already been held in New York, Philadelphia, and Washington, is herewith attached. Local workshops are being established in Cincinnati, Hartford, Boston, Detroit, Chicago, San Francisco, and other metropolitan centers.

The Foundation is convening the first National Workshop on Integration, for representatives of boards of trustees and faculties of American colleges and universities, on the campus of the University of New Hampshire at Durham, August 16th through the 21st.

CONSULTATIVE SERVICES

The Foundation, through the work of the Curriculum Studies Board, and of the Consultative Services Department, provides consultative services to institutions and individuals engaged in studies or programs of integration, as follows:

1. Experienced consultants on integration, not ordinarily available on any single campus, giving objective counselling on efforts toward integration on individual campuses.
2. Arrangements for cooperative studies on integration in which two or more schools may join.
3. Specific material aid, including instructional materials, selected bibliographies, and the like.

FOUNDATION MEETINGS & WORKSHOPS

New York City

Centering on the subject, How to Provide a Unified General Education for American Youth, the second New York meeting of the Foundation was held on Wednesday, February 18th, in the Kosciuszko Foundation, 15 East 65th Street.

Speakers at this meeting were: Dr. Samuel M. Hilburn, President of Dakota Wesleyan University, Mr. Roger C. Gay, Assistant Dean, New York Medical College, Dr. A. Gordon Melvin, Associate Professor of Education at City College of New York and Mr. F. L. Kunz, acting President of the Foundation for Integrated Education. Dr. Donald Faulkner, Board of Higher Education of the Northern Baptist Convention, was moderator.

Dr. Hilburn briefly outlined initial aspects of the program of curriculum integration at Dakota Wesleyan University under which a small western university is attempting to re-tool education to meet the requirements of the atomic age. Every phase of living and thinking is to go under the microscope in an effort to find a new and better pattern of education. At the center of the Dakota Wesleyan University experiment in integration, according to Dr. Hilburn, is a new seminar-laboratory course which will seek to determine whether firm documentation can be found, especially from the physical sciences, for a spiritual philosophy of life. "The kind of man modern society needs," Dr. Hilburn stated, "is the guide to the kind of curriculum we need." This experiment at Dakota Wesleyan University is to be carried on within the framework of a functioning campus democracy. The students and faculty members are working as a cooperative, democratic team in this approach to curriculum integration. Subsequent reports on the progress of this program at Dakota will be made from time to time by the University and by the Foundation.

Mr. Kunz described his recent conference at Dakota Wesleyan University with its faculty and students. Among the various approaches towards integration under examination at Dakota Wesleyan University is that of conceptual integration, on which Mr. Kunz has done considerable exploratory study. As described briefly at this meeting, this approach comprises essentially the identifying and assemblying of such broad integrating principles or concepts common to several fields of knowledge, as appear to provide basic answers as to the nature of the individual and the universe. New means should be sought to close the gaps that now exist between such fields as the physical sciences and the social sciences, the arts and the philosophies, etc. Mr. Kunz has supplied Dakota Wesleyan University with some original studies on conceptual integration. These will be used together with material from other sources in their integrative program.

Dr. A. Gordon Melvin, who accompanied Mr. Kunz to Dakota, stressed the importance of thorough faculty preparation prior to the introduction of an experimental program in integration. Much more needs to be learned, he pointed out, as to the methods by which an outside agency, such as the Foundation for Integrated Education, can effectively assist individual institutions of higher learning that wish to experiment further in integration. This may be one of the most valuable results of the present relationships between Dakota Wesleyan University and the Foundation.

Mr. Roger C. Gay told of the awareness of professional schools, especially of medical schools, of the need for greater integration in education. He also said they realized the problems that undergraduate schools faced in their desire to establish integrative programs. However, more must be done to reverse the present trend, he said, in which students come up to the professional schools satisfactorily trained as technicians but not as scientists. Moreover, there is too much evidence of lack of integrated personalities among college graduates. These deficiencies in education, he felt, are unfortunately perpetuated by professional schools. Whereas the need in medicine, for instance, is for more general practitioners, the trend is towards more specialists. Colleges must do more social inventing and must operate

as functional laboratories of democracy. In conclusion, Mr. Gay ventured the opinion that professional schools will cooperate with undergraduate institutions in sound efforts at integration.

In the discussion that followed the talks, Dr. William H. Kilpatrick of Teachers College, Columbia University remarked that modern education is still dominated, in large degree, by the Aristotelian concept of learning. He urged greater application of modern principles of progressive education at the college level, believing that these would aid in producing whole men for a whole society.

Further New York City meetings, or workshops of the Foundation, will be held at the Kosciuszko Foundation on April 28th, May 26th, and June 30th.

Philadelphia

The first Philadelphia meeting under the auspices of the Foundation for Integrated Education was held at the Union League Club, March 4th, 1948, the host being Colonel Samuel P. Wetherill.

Colonel Wetherill, in the course of introductory remarks, described the purpose and subject of the meeting. He elaborated on a suggested pattern to implement a philosophy of interdependence as a foundation for greater individual, group and world integration. In quoting from a poem by Hermann Hagedorn, he pointed out that the day when we will have to wake and think is surely coming.

Dr. Carter Davidson, in talking about the need for integration, stated that the biblical verse, "Thy name is legion," could aptly be applied to the curriculum in education. He pointed out that up to the 17th Century packages of learning were pretty well held together by tradition and moral philosophy. The Reformation and the coming of modern science loosened this cement. Educators, therefore, today are faced with the questions: (1) Around what philosophy do we integrate? (2) How do we bring about integration? In his opinion and experience, the answer to the second question starts with developing a group mind within the faculty of an institution. At Knox College, where experimental work was carried on, a philosophy and program of regional orientation originally provided the integrating core. At Union College an effort is being made to provide integrating forces at the senior year in order to tie up the full four-year package. Dr. Davidson especially urged the importance of faculty consolidation, that is, securing a group mind and getting everyone in on the integrating process. As generally felt by all present, efforts directed towards integration are as valuable to the faculty as to the students.

Mr. Roger C. Gay stated that medical colleges seemed to be more concerned with producing good technicians than with turning out practitioners with a sense of the whole and a social responsibility. The trend in professional schools is toward specialization, whereas the need is just the opposite. There is definite need, he said, to examine relations between integrated education and mental health. This is the belief of a number of psychiatrists. In the tradition of Dr. Tresseder, Mr. Gay urged the unfettering of professional schools. He expressed confidence that professional schools will cooperate with undergraduate schools in a gradual and ultimate relaxing of admission demands.

Dr. Ashley Montagu expressed the opinion that the curriculum of medical colleges is still medieval. It can be said that this curriculum is afflicted by schizophrenia. Courses without end appear to be multiplying. The position of the doctor in society must be given greater consideration. He urged that medicine not overlook the fact that great principles are essentially spiritual: that love and goodwill are examples of a great principle that is both biological and spiritual truth. There is, he felt, scientific validity for the Christian concept of a good life. It is this kind of biology and science that must find a place in the curriculum of medical colleges.

Dr. Gilbert White said that Haverford College was also at work on the problem of integration in the direction indicated by Dr. Montagu, particularly the question as to the relationship between an integrated individual and an integrated universe. Dr. Fogg spoke of the cultural sensitivity resulting from the preliminary integration work done at the University of Pennsylvania.

In summation, Mr. Kunz stated that we must renew our dedication to win the great battle of human freedom that was started in Philadelphia by our forefathers. He sees this achieved only by thinking deeply into education. We can give to the rest of the world, if we will, more than money and food and arms. A fundamental educational re-tooling can equip America to provide the kind of leadership that the world needs. We must free the American educator, he urged, to find the cross-connections between the great blocks of human knowledge that constitute a college curriculum.

Washington

The Foundation for Integrated Education was represented in a public tribute to the memory of the late Alfred North Whitehead, in the Library of Congress, March 21st, sponsored jointly by the Library, the Washington Academy of Sciences, and the Foundation.

Dr. Luther Evans, Librarian of Congress, presided and spoke upon "A Contemporary Evaluation of Whitehead." We are privileged to print his remarks in full. F. L. Kunz spoke extemporaneously, along the lines of the summary here reproduced. The evening was greatly enriched by a searching and deeply-felt address read by Dr. Charles Malik, formerly a student and assistant to Professor Whitehead, and presently Minister of Lebanon to the United States. We regret this manuscript is not available at present. We append, in this order, a letter by Justice Felix Frankfurter on Whitehead, New York *Times*, January 7, 1948 (which prompted the meeting), the remarks of Dr. Evans and of Mr. Kunz.

I

From knowledge gained through the years of the personalities who in our day have affected American

university life, I have for some time been convinced that no single figure has had such a pervasive influence as the late Prof. Alfred North Whitehead. Certainly so far as this applies to the country's oldest university, my statement will hardly be disputed. I should like to try to describe the nature of the ferment imparted by a thinker whose philosophic speculations were mostly beyond the capacity of those whom he touched.

That our universities have grave shortcomings for the intellectual life of this nation is by now a commonplace. The chief source of their inadequacy is probably the curse of departmentalization. Among students, as well as among teachers, there has been a tendency to regard courses as something which exist in nature, instead of artificial simplifications for the mastery of what are complicated organisms, whether of nature or reason or society. Professor Whitehead exerted powerful influence to break down this separation in the various departments of the university.

From the time that he came to Harvard in 1924 he infused an understanding of interdependence among the various disciplines, to use the current jargon. For all who came within the range of his infectious personality, arid professionalism was quickened into exhilarating meaning and the universe expanded. Such was the quiet, almost shy magic of his qualities that his influence imperceptibly but quickly permeated the whole university.

The need for breaking down sterilizing departmentalization has been widely felt. Unfortunately, however, a too frequent way of doing it has been, wittily but not too unfairly, described as the cross-sterilization of the social sciences. That is a tendency by which a difficult problem, say of the law, is solved by relying on the formulation of a dubious truth in some other field.

Professor Whitehead's insistence on understanding through realization of the interdependence of thought and ideas and institutions was quite otherwise.

He was fiercely on guard against the illusions of verbalization and did not confuse certainty with certitude. In short, he was tough-minded because he felt the universe as illimitable. He distrusted closed systems because they imprison the creative possibilities of insight and experience. He was relentlessly exacting of accurate responsible thinking, precisely because he knew that even the most rigorous thought cannot achieve fullness of comprehension.

It was not by courses or lectures that he ignited to deeper understanding and more beautiful visions the minds and feelings of hundreds of students, alike youngsters fresh from high schools and colleagues themselves eminent. He did this predominantly through informal and unpremeditated talk, mostly in his modest apartment, which gave even the most timid freshman the sense of participation in an exciting adventure. Everything of distinction contributed toward these unfailing memorable occasions. Not to mention Mrs. Whitehead would be to omit enveloping loveliness.

Professor Whitehead had a benign and beautiful presence, a voice and diction that made music of English speech, humor that lighted up dark places, humility that made the foolish wiser and evoked the wisdom of the taciturn. For twenty years Professor Whitehead exercised this great and radiating influence. He did so at Harvard because he was there. He did so beyond because he was what he was. People came to Harvard because he was there. People read his books who had no background for understanding them. This partly explains why he is said to be so hard to read. No one who is ready to read serious books can fail to find luminous charm in his non-technical writings, like his recently published *Essays* and his *Adventures in Ideas*.

To dwell, however inadequately, on the qualities of a teacher like Alfred North Whitehead is important if our universities are important. They are important if the institutions specially charged with the accumulation of the intellectual capital of the world are important to a society. Who will deny that Professor Whitehead was right in his belief that the fate of the intellectual civilization of the world today is to no inconsiderable extent in the keeping of our universities? "The Aegean Coastline had its chance and made use of it: Italy had its chance and made use of it: France, England, Germany had their chance and made use of it. Today the Eastern American states have their chance. What use will they make of it? That question has two answers. Once Babylon had its chance, and produced the Tower of Babel. The University of Paris fashioned the intellect of the Middle Ages."

The awful question that confronts American universities is, What are they doing with their power and their duty?

FELIX FRANKFURTER

II

We are met here tonight to pay honor to a very great man — a man who, having achieved a full life's work in his native country, could still give almost a quarter of a century of creative thought and creative teaching to a land other than his own; a man who, before all but few others of our times was, by virtue of the universals which were the subject of his thought, and by virtue of his insistence upon the whole man, worthy of being a citizen not of one country but of the world.

Alfred North Whitehead died in Cambridge, Massachusetts, on December 30, 1947, at the age of 86. He had worked and taught at Harvard for twenty-three years, and the friendships which he made and the ideas which he stimulated there are represented here tonight. Many in this audience have sat at Whitehead's feet; it is my regret that I did not do so. But, as Justice Frankfurter has said, though Professor Whitehead's great and radiating influence was exercised at Harvard because he was there, it was exercised beyond Harvard because of what he was. He was not only a great humanist, the *proponent* of the whole man; through his "benign and beautiful presence," through his infectious enthusiasm, through the luminous charm which radiated from him toward all who approached him either in person or through his writings, he was in himself an *embodiment* of the whole man. At his

death it was said of him by a reporter for the *Boston Daily Globe* who, though lacking more than a high school education, had come under Whitehead's influence, "Harvard may claim him pridefully; but to me he is the dean of the University of Life."

"We think in generalities," said Whitehead, "but we live in detail." Although his name will always be associated with those most abstract studies, the logic of numbers, symbolic logic, and metaphysics, one can see by looking over the details of Professor Whitehead's life that he was always concerned with the whole man. He was born on February 15, 1861 at Ramsgate, on the Isle of Thanet in southeast Kent, where his father was the Vicar of St. Peter's. Both his father and his grandfather had been schoolmasters, and Whitehead grew up in an environment in which the problems of education and religion were matters of highest importance. But he himself attributed an influence not only to his family origins and associations but to the geographical environment as well. "Geography is half of character," he has said. "The soil there" (speaking of his school days in Dorsetshire) "is rich, loamy and gravelly." His education was the usual education of an English boy (he liked to call himself "an ordinary example of the general tone of a Victorian Englishman"), and he has left a careful description of his boyhood schooling. "Altogether," he concluded, "we were a happy set of boys, receiving a deplorably narrow education to fit us for the modern world. But I will disclose one private conviction, based upon no confusing research, that, as a training in political imagination, the Harvard School of Politics and of Government can not hold a candle to the old-fashioned English classical education of half a century ago."

In 1880 Whitehead went up to Trinity College, Cambridge, where he took his BA in 1884, his MA in 1887 and DSc in 1905. Here his studies were in mathematics, but he read widely in history, the belles-lettres, and philosophy. (He confesses that at one time he nearly knew by heart large parts of Kant's *Kritik*.) Here also he sharpened his dialectic in Socratic discussions in various student and faculty groups where he crossed swords not only with his immediate associates but with distinguished visitors to Cambridge — historians, lawyers, scientists and politicians — in whom were to be found some of the most notable minds of the day.

From 1885 to 1911 he was lecturer and later senior lecturer on mathematics at Trinity. In 1898 he published his first book, *A Treatise on Universal Algebra*, the purpose of which was "to erect a calculus to facilitate reasoning in connection with every province of thought . . . so that all serious thought which is not philosophy, or inductive reasoning, or imaginative literature, shall be mathematics developed by means of a calculus."

In 1890 he married Evelyn Willoughby Wade to whom Justice Frankfurter has paid such a glowing tribute in his article in *The New York Times* last January. Before leaving Cambridge, also, he had with one of the most famous of his students, Bertrand Russell (now Earl Russell), published the first volume of *Principia Mathematica*, that monumental work in which he attempted to deduce a mathematical from a logical system.

In 1911 he left Trinity to become lecturer on applied mathematics and mechanics, and later reader in geometry, in University College at the University of London, where he remained from 1911 to 1914. From 1914 to 1924 he was professor of applied mechanics at the Imperial College of Science, later a part of the University of London, where he served also as Dean of the Faculty of Science. During this period he published *The Organization of Knowledge*, 1916; *The Principles of Natural Knowledge*, 1919; *The Concept of Nature*, 1920; *The Principles of Relativity*, 1922; as well as the later volumes of the *Principia Mathematica*.

At the age of 63, facing retirement from the service of the University of London, he joined the staff of Harvard, to which he was to lend distinction for many years, and where much of his most enduring work was to be done. *Science and the Modern World* appeared in 1925; *Religion in the Making* in 1926; and *Symbolism, Its Meaning and Effect* in 1927; *The Aims of Education* was published in 1929 and *Process and Reality* appeared in the same year. *Adventures in Ideas* followed in 1933, *Nature and Life* in 1934, and *Modes of Thought* in 1938. In 1936 he retired a second time, thus becoming at once a professor emeritus of applied mechanics in the University of London and professor emeritus of philosophy at Harvard. In 1945 he was named one of the twenty-four members of the British Order of Merit.

Whitehead's death at the end of last year was the signal for a spontaneous outpouring of generous appraisals of his life and work. It is significant, perhaps, that most of the appraisals which have so far appeared have not been from the pens of his colleagues, either the philosophers or the mathematicians. Rather, they have been from those who have not attempted to test Whitehead's conclusions against rigid systems of logic, but who have fallen under the spell of his personality and of the glimpses of the universe which he knew so well how to convey through his frequent and quotable aphorisms.

Thus, though the newspaper captions at the time of his death hailed him as the "philosopher's philosopher," he was in reality Everyman's philosopher, and all who in any way came within reach of his influence, like the Boston reporter whom I have mentioned, have mourned his passing. A religious journal (*The Christian Century* 65:36) recalls that "Whitehead, beginning with what seems the most rigid of disciplines, developed a liberating philosophy the total tendency of which was to justify man's claim to moral freedom and his affirmation of the reality of spiritual values." An educational journal (*School and Society* 67:24) found that "his chief contribution to the history of thought was his 'philosophy of organism,' which he defined as concerned with 'the becoming, the being, and the relatedness of actual entities'." An editorial writer for one of the great metropolitan dailies (*Washington Post*, Jan.

4, 1948) says simply, "The death of Professor Whitehead . . . has, in the opinion of many, removed the most influential thinker of his age." I wish that time permitted me to read to you the whole of the beautiful tribute which Justice Frankfurter wrote in the *New York Times* for January 8, 1948; but I shall quote only the first paragraph:

> From knowledge gained through the years of the personalities who in our day have affected American university life, I have for some time been convinced that no single figure has had such a pervasive influence as the late Prof. Alfred North Whitehead. Certainly, so far as this applies to the country's oldest university, my statement will hardly be disputed. I should like to describe the nature of the ferment imparted by a thinker whose philosophic speculations were mostly beyond the capacity of those whom he touched.

Perhaps it will not be thought out of place to quote here also the well-intended compliment of the *Harvard Crimson*. "Whitehead's next great work was his *Process and Reality* . . . Hardly read by his contemporaries and colleagues, not understood by reviewers and most of his pupils, it has already attained the status of an indispensable work." To this the *New Yorker* added, "That'll do it."

In one of his own many attempts at a definition of philosophy, Whitehead said, (*Modes of Thought*, Macmillan, 1938, p. 232) "Philosophy begins in wonder. And, at the end, when philosophic thought has done its best, the wonder remains. There have been added, however, some grasp of the immensity of things, some purification of emotion by understanding." I think it was Whitehead's ability to convey to his students and readers this grasp and this purification which resulted from his own experience that was the secret of his own greatness. We should do well, therefore, to take warning from the remainder of his text. "Yet there is danger in such reflections. An immediate good is apt to be thought of in the degenerate form of a passive enjoyment. Existence is activity ever merging into the future. The aim at philosophic understanding is the aim at piercing the blindness of activity in respect to its transcendent functions."

LUTHER H. EVANS

III

The hope for a democracy, its ability to maintain and enlarge its liberties, must rest fundamentally upon the educational experience of its citizens, hence upon teachers. With ample respect for jurists, political figures, social workers, and economic experts, the initiative has passed out of those sectors, and a re-creation of purpose depends upon leaders in education.

In turn, the only hope of teachers is in philosophy. This has always been the case. It is obviously impossible to engage in education unless the nature of man and his place in the scheme of the cosmos are understood. Nurture, training, and general education may be pursued upon a simple and practical level. But education, in the sense of liberal experience confirmatory of liberties, requires a high level of understanding and of general agreement.

The philosophical task before teachers today is prodigious, because science and its products have challenged the whole structure of older philosophy. We are compelled to achieve a re-union of the disciplines on new terms. Art, philosophy, religion and science are no longer interconnected, and hence we have lost basic meanings and values. We may all admit that we can know the truth, and that the truth, when known, will result in freedom. We have sadly to admit, however, that the truth is not known in a large sense, and it is not sufficiently prized. That is why we are actually losing our freedom.

Thus the life of Whitehead is now seen to be critically important to us. The task of integrating knowledge seems to many to be too vast to be accomplished, and certainly to be accomplished in time to head off the disasters toward which we are moving. To engage in such an undertaking one must have hope. Whitehead's achievements are conspicuous contributions to that hope.

He had the required mathematical and other equipment with which to examine the chief findings of science, even the most difficult and recent. Yet he has written one of the finest works in defense and indentification of religion. He was a free inquirer, and he was no friend of materialism in its subtle form of energetics. In him we see a superb example of a man who possessed a vast store of truth, and who was therefore truly a free man.

Just as Whitehead's achievements constitute a remarkable source of confidence for us, so also those aspects of knowledge which concerned him less than others show us what we must do. He has not written in very much detail upon comparative religion, for example. Again, although he understood as few men have the organic nature of the universe, many of his discourses have that remote, even arid, quality which is so often seen in contemporary philosophers who are able to draw off great abstractions, but frequently are compelled in so doing to leave behind them the warmth needed to bring home such truths to all of us. This is all the more significant in a man as wholesome as Whitehead. What does it mean?

It means that the task of restoring our souls to us is a task for a group, not an individual. No man, not even a Titan such as was Whitehead, can delineate what we need to know, and keep all that must be retained in the picture. His life shows that understanding can be had; it shows also that if such understanding is to be obtained in contemporary terms and made available in time to save us, we must get to work together and promptly. A man like Whitehead will be an invaluable guide, none more safe for us. But the work has yet to be done which will restore values to teachers, and give them the understanding they need in order to speak with authority.

Our plight is perilous. Truth is not prized, and society decays before our eyes. But things are not yet

desperate, though they are urgent. If we only get together to create an American point of view, we can straighten ourselves out, and after that give the world something besides food, goods, armaments, and general confusion. We can give it leadership. Whitehead, in such a program, would rank as a Promethean.

The urgency of this great task of achieving a progressively better concensus, demanded of us by the Report of the President's Commission on Higher Education and hundreds of individuals and institutions of learning, is undeniable.

A great sister nation has inherited a philosophy of materialism. We witness in her today the strange phenomenon of a whole people pursuing an official philosophy through the mandate of a dominant political group. That this philosophy is inadequate is also evident. Marx and Engels lived and labored upon a synthesis of knowledge and social applications before the revolutionary events in science which began in 1895 with what we now call electronics. Gregor Mendel's no less transforming studies were generally known only after 1900. There is a long and impressive list of developments decisive as bases for an idealistic philosophy of a new kind which the contrivers of communism did not live to see.

This being so, American scholars have the privilege and the duty of shaping, on an adequately generous scale, with entirely new knowledge, what we *must* have: an American ideology to link our ideals through knowledge and philosophy to our proper American practices. The result will be to give us the convictions we lack. Instead of waging wars which move from the cold stage to those which shed the warm blood of hundreds of thousands of mankind, we have to devise intellectual and moral instruments for a high-level contest. Instead of exporting money and food, we have to offer insight. Instead of bolstering tottering regimes which have nothing whatever in common with American ideals, we have to make good our promise of confirming and enlarging our own freedom.

Until this is done, we shall continue to accept a conflict on a low level. This will end in peoples perishing by the violence which they have accepted.

It is not true that we can do nothing inside Russia. We can seek truth and liberate it on the world — contemporary truth, spiritual truth consonant with scientific gains. No curtains, no trenches, no gas masks can keep that out. But before we can circulate the liberating truth we must possess it, as a national form of wealth.

Before we can aid the people of Russia in this way, we must set our house in order. We can show, as our present mass production complex has not yet adequately demonstrated, that we can achieve a society better than any other, in mere terms of physical security. But we have to do more: we have the promises of Whitman, of Jefferson, of Franklin and others to redeem philosophically. If we cannot transfer the competitive scheme of things to a domain higher than the physical, then we have no proper leadership for the world.

The task is one for the universities and the colleges. We know from the life of Alfred North Whitehead that insight can be had, such as includes all the gains since 1895. What one man can do for himself, we can do for ourselves, lesser though we may be, if we act together.

So doing, we Americans shall be carrying on the work of a great talent who adopted us and who has given us direction. No lesser memorials can serve a man who himself served the cause of learning as enlightenment throughout the modern world. The task is monumental. It is this kind of monument which alone is worthy of Whitehead: saving the world of men, by creating and sharing spiritual wealth.

F. L. Kunz

THE DAKOTA WESLEYAN UNIVERSITY PROGRAM

In 1946 the Board of Directors of Dakota Wesleyan University had set up a Planning Committee in conjunction with the Faculty and Student Body to revise as thoroughly as necessary the whole program of studies and activities on that campus. The object was to make sure that the supremacy of spiritual law would be effectively taught and competent citizenship adequate to our times encouraged.

During the discussion of this ambitious undertaking, the editor of Main Currents In Modern Thought (F. L. Kunz) was consulted by the chairman of the Planning Committee, Mr. W. R. Ronald, as a result of an article in the Bulletin of the Laymen's Movement for a Christian World, in which the nature of the problem of the integration of knowledge was discussed. The essence of the article was that scientific method is now available to effect progressively the required consolidation of studies, on a basis of authority derived from science, and that such a technique would produce a firm integration, as contrasted with a consensus of mere opinion. This new advantage given by contemporary science consorts precisely with the formal commitment of the University, which reads: "Believing that knowledge should be focused upon the study and use of spiritual law, this institution accepts the challenge that the Christian ethics is a thesis requiring both application and proof." The words "study," "use," "application" and "proof" are notable herein. The Planning Committee having found encouragement, they continued through Mr. Ronald to work with Mr. Kunz as one of their counsellors.

The Board of Directors presently had the good fortune to secure as their new President for the University, Dr. Samuel M. Hilburn, upon the suggestion of officers of the Laymen's Movement. Not long after taking office, Dr. Hilburn attended a small exploratory conference on education, conducted in New York City, under the auspices of the Laymen's Movement and Mr. Kunz's chairmanship. Sufficient progress was there made to strengthen relationships, and in 1947 Mr. Kunz

made a brief visit to the campus of the college, at Mitchell, South Dakota, to discuss with the faculty the possibilities of further collaboration.

The journal, MAIN CURRENTS In Modern Thought, was founded in 1940 to stir interest in the integration of knowledge by the use of scientific method over a very broad front. By 1947 the journal had attracted a sufficiently large group of friends to make it possible to organize a formal effort along such lines. Accordingly late in 1947 the Foundation for Integrated Education came into being. The work which hitherto had been done on a personal basis could now, at Dakota Wesleyan and elsewhere, be broadened to include many. The University authorities confirmed their intention of co-operating with the Foundation, and in February, 1948 Dr. A. Gordon Melvin and Mr. Kunz were the guests of the institution for a week, during which a specific purpose was pursued. It was the duty of the latter to try, in a series of morning seminars with students and faculty, to outline the possibilities of extending the special resources of scientific method, and especially measurement, from a base on the firmest forms of physics, up the hierarchy of subjects into the human domain. This is a prodigious undertaking and could only be briefly sampled. In order to allow of this approach being more carefully examined, a block of the materials has been prepared for use in a seminar, conducted by Professor McAninch, which is intended to provide a series of cross-connections with all subjects of learning and all forms of experience. It was the duty of Dr. Melvin to discuss matters of program with faculty and students, commencing at the point of solid advance already made by the University faculty in many conferences.

From the beginning of the relationship between the University and the Foundation, the principle was established that progress would be made securely by entirely democratic methods, the faculty (which, at Dakota Wesleyan includes fifty percent participation of the students) to decide every step to be taken in instruction, toward the realization of the University's present commitment. The role of the Foundation has from the beginning been, and continues to be, that of consultant. No other relationship is conceivable if we propose to strengthen democracy and validate religious insight.

Sufficient benefit was derived from the conference week in February to allow the faculty to confirm the relationship of the two institutions in a formal resolution looking forward to continued sharing of materials, and to a joint program of fund-seeking for the promotion of the integration program.

The following steps are now indicated.

The Foundation will enlarge and systematize the work of its Studies Council. The function of this Council is to examine all efforts at integration and all materials useful in courses of study, and to commend those which seem to the Council to contain elements of importance to progress along these lines. There is now an increasing quantity of such materials, and the Council will serve, with the help of the Foundation's secretariat, to screen it and make it more widely known. In particular it will serve Dakota Wesleyan and other institutions of higher learning which collaborate with the Foundation.

The Foundation will work closely with those members of the Faculty of Dakota Wesleyan who are charged with making progress in a central course of study, where the whole of knowledge is laid under tribute for ends of integration. At present this vast labor is concentrated in the seminar above referred to. Through it a new point of view will be made available to the student body, and the University will continue to act as a pioneer laboratory in such studies.

Dakota Wesleyan University is at Mitchell, South Dakota, and Mitchell is near to everywhere. It is about as near to New York as it is to Los Angeles, a bit nearer to Canada than it is to Mexico. It is at the heart of things, and the vigor of its heartbeat is robust. This uniqueness of Dakota Wesleyan University lies in a long tradition which has grown up in the Land of the Middle Border. The piquancy of its tradition includes the early rugged Americanism of the Plains, and is exemplified in the picturesqueness of the dignified colony of Hutterites nearby. A rare collection of Middle Border items is housed on the campus.

VOICES OF LEADERSHIP

Science and the Whole Man

Dr. Edmund W. Sinnott, Director, Sheffield Scientific School, Yale University, and the incumbent president of A.A.A.S., in a talk given during the centennial celebration of the School, stated eloquently and cogently the case for an integration of science and humanities in education. He establishes the antithesis of the two philosophies: reason and science, versus direct intuitive understanding. Neither one by itself can produce a complete human being. "If mind is suspect, as in religious fanaticism, he may become a creature only of his instincts and emotions; if spirit is suspect, as today when scientific materialism carries such authority, he is in danger of degenerating into a selfish and soulless mechanism. To be a whole man he must cultivate both parts of him."

Dr. Sinnott's development of this point is of the utmost immediate importance to the achievement of integration, and we therefore summarize his truly penetrating analysis:

"This week we celebrate the end of a momentous century. These hundred years have witnessed changes in the life of man . . . changes which are chiefly due to the rapid advance in all the sciences. . . .

"But one who faces the hard facts of history today, however confident he still may be, can hardly say that it is going well with man. A world which has been

plunged into dark years of doubt and disillusion by two great wars has learned at last that progress in the sciences, certain and permanent though it surely is, by no means brings true progress for mankind. . . .

"This contrast between the philosophy of science and that of what is sometimes labeled the 'humanities' . . . confronts us everywhere today. The issue is not new. Here lies the ancient controversy between materialist and idealist, skeptic and mystic, doer and seer, reason and faith, Occident and Orient. . . . Today's most challenging and necessary task is to seek out a basis for agreement between these two philosophies, a common ground on which the sciences and the humanities may stand together, not as contenders for the mind of man but as equal partners in its service.

" 'It is the Nemesis of the struggle for exactitude by the men of science,' remarked a great biologist, Dr. H. S. Jennings, 'that leads him to present a mutilated, merely fractional account of the world as a true and complete picture' . . . Out of that amazing protoplasmic system upon which our conscious life is based arises this throng of reactions, instincts, attitudes, and mental patterns, which often seem chaotic and without control but which form such an important part of every life. . . . In these protoplasmic patterns is to be sought the 'old Adam,' the changeless core of human nature, lusty unregenerate, a heritage which makes so difficult the building of a good society. But let us not forget that from this same deep living matrix there pour up into consciousness the passions, the ecstasies, and longings which are so significant in the lives of men. Just as intellect may rise from the simple animal reason to the lofty genius in the progress of the sciences, so may this other aspect of mind ascend from beastliness to high humanity. . . .

"Here, then, is posed the real antithesis between our two philosophies. May a true knowledge of reality be reached only by travelling the road of reason and of science, or may it also be approached along the old and very different pathway of direct, intuitive understanding, the pathway of the poets and the seers?

"A second cause to hesitate today in accepting too rigidly materialistic a philosophy is the remarkable change which has come over the physical sciences since the century's turn. . . . This is no day to be dogmatic or complacent. The idealist who follows the ancient highway of the spirit towards reality has gained a more respectful audience than was his half a century ago, serious men who look to him now for something more than pleasant fairy tales. . . ."

His conclusions may be summed up in his own words as follows: "My plea is to push on in science with the utmost vigor and enthusiasm we possess but also to admit that there are many aspects of reality with which it evidently cannot deal, matters of the utmost moment to mankind if he is to build that Good Society which all of us in these dark days so ardently desire. In the confusion and uncertainty which beset the world we may be tempted to fall back upon the simple philosophy of materialism which has proved so serviceable in the sciences and is supported by their great prestige, and to scoff at those well-meaning but softheaded fellows who believe that there is another avenue to truth. I urge the recognition of this other avenue and its diligent exploration. Around it have grown up the great tradition of the arts, the humanities, and the religions, the ideals of freedom and of good will and of the worth of man.

"Through education must come this new attitude that may bring the better day. . . . The sciences and the humanities must not be taught as separate disciplines, but as the two main aspects of a broad liberal training, and we must emphasize the many qualities they have in common. Logic and reason are no monopoly of science, nor is creative intuition limited to practitioners of the arts. . . . And, finally we should not forget that though the great faiths of the world have been nourished by spirit, the deepest of all faiths — that in an orderly and dependable universe — is the fundamental postulate of every science."

(Abstracted from *American Scientist*, January, 1948, p. 127. The full report is also in *Mechanical Engineering*, February, 1948, p. 113.)

New Courses for Old

The address of Professor Harlow Shapley before the last session of the Conference on Science, Philosophy, and Religion was published in *The Journal of Higher Education*, December, 1947.

Must We Climb Steeples? is his topic. Some plain truths about the hoax on democracy in some of our political affairs, and the detachment of scholars and religious institutions from these matters, lead to the figure of specialists of all kinds climbing steeples until at last they are wedged in alone about the hurly-burly. Dr. Shapley then reviews the relation of the recent spate of educational self-examination to "these blobs perched wonderingly and uselessly on the steeples." "Why not integrated education rather than disparate education?"

Sketches are provided of ten suggested courses of study in "major general problems rather than studies in traditional specialties — problems rather than subjects, if one defines those concepts suitably." 1. *Societies*, "from political science, philosophy, demography, entomology, engineering, psychology, ethics, psychiatry, and other areas," additional to social relations and anthropology, in the ordinary style. 2. *Growth and Decay*, "from philosophy, chemistry, cosmogony, geology, literature, all aspects of biology, statistics, calculus and history." 3. *Communications*, "from folkways, linguistics . . . biology, political science, electronics, psychology, cryptology, philosophy, music, mechanical engineering, journalism, navigation, solar astronomy, and ionospheres." Courses 4, the *Past*, 5, *Science*, 6, *Religion*, "from human psychology, history, social anthropology, literature, economics, *military strategy*, . . . and philosophy" (the italics not Dr. Shapley's). 7. *Money and Barter*, 8, *Art Forms*, 9, *Industry*, 10 (one sample of many "chronological analyses") the *Eighteenth Century*, give us a good idea of the shift to concepts.

Dr. Shapley, President Sinnot, and Dr. E. U. Condon,

are the officers responsible for the Centenary of the American Association for the Advancement of Science. Of this we learn herein: ". . . a year from now, . . . we shall have our centennial celebration in Washington, and the nature, plan, spirit, and slogan of the Association's meetings on that occasion will be Integration." (Author's capital.) "The score or more of addresses will be aimed to present and guide science as a whole, with emphasis on interfield work, on the cross-ties, on the multiple-discipline problems — in fact, with emphasis on the major questions for which scientists, as specially trained agents of this worried civilization, should be responsible." "Perhaps Cabinet ministers, a Supreme Court justice, and some bureau chiefs will preside at particular sessions, as they would in India, Mexico, or Russia. By radio and press, the public can, if it will, learn from competent interpreters in many fields, of the 'One World of Science,' which is probably to be the central theme for the centennial."

Philosophy and Education

In the *Journal of Higher Education*, January, 1948, President Harold Taylor of Sarah Lawrence College examines with special clarity the role of philosophy in the experience of the student and in the duties of the teacher. The following abstract is in his own words, passages deleted being represented by three period dots, in conformity with our practice:

"The contribution which philosophy can make to education is to create a philosophical attitude. That attitude of mind is one which finds life and thought intensely interesting, refuses to accept unexamined doctrines, and has a permanent respect for the beauty and goodness of truth. . . .

"To create the philosophical attitude is only one task for philosophy in education. The young people we are asked to educate today are searching for positive beliefs and firm values by which they can live. They are earnest in their efforts to find a philosophy which is intellectually and morally justified. Since the ultimate object of both education and philosophy is to make human action wise and good, the function of philosophy in achieving that object is to aid the education of each person toward a conception of wisdom and goodness so firmly and clearly held that it has a part in the future regulations of his conduct. . . .

"There is common agreement that within our universities the separation of the field of knowledge into special disciplines is useful for the advance of research within each area, but harmful to the total education of the student. It is for this reason that most of our current educational reform is concerned with combining separate forms of knowledge into more general forms. This is our attempt to restore the unity of knowledge and value. Yet it is doubtful that such rearrangement can restore unity until we have found a philosophy by which the field of modern knowledge can be organized. Otherwise, neither our education nor our students will have a philosophy.

"The philosophy which can provide the needed unity for education in a modern world is that of organism and of process. If the total educational process is considered as a growth towards a mature philosophy of life, then each part of the process must be organically related to that central ideal.

"In a very real sense, every course becomes a course in philosophy, since its purpose is to teach students to think critically and wisely about man and nature. The philosopher, on his part, can explore with his students any aspects of the universe in which he and his students find philosophical problems. It is, therefore, not necessary to attempt a unity of knowledge, by insisting upon a survey of all knowledge. What we must insist upon is that mind is not passive, that education is not for stocking the memory, but that each part of education is an attempt to enable the mind to use ideas and values which are significant to life in the present, and to enable the individual to make his own relations amongst those ideas and values. This means that the emotional impact of an idea, or its aesthetic perception, is of basic importance to an understanding of its meaning. Its validity, its truth, its relation to other ideas must be understood by an activity of the individual, who experiences it, not by certain rational activities of his teacher.

"Philosophy can, therefore, contribute to education its insights into human nature and its discrimination amongst human values, and can help to frame new propositions about man and nature, in order that the educational process may form itself around fresh and active ideas."

The Role of Science

In his address as retiring president of the American Association for the Advancement of Science, James B. Conant examines *The Role of Science in Our Unique Society*. The full account is in *Science*, January 23, 1948. President Conant places "science within the area of accumulated knowledge . . . instead of regarding it as coextensive with it"; but he signalizes another shift, one much more important educationally, in his emphasis upon the importance to human experience of the conceptual role of science. "Science has a dynamic quality when viewed not as a practical undertaking but as a process of developing conceptual schemes." The superior importance of this stand may not be absolute over the other which places science within a larger, less exact, domain of knowledge, but certainly it ranks high because not so many see the superior value, to man, of science as enlightenment over science as physical achievement.

The whole discussion comes to a clear focus when it is applied to our unique (and relatively unstratified) society, with its ideals. For Mr. Conant here makes the views of many of us count against those "sneers" from "hard-boiled realists" who say that facts are against the idealists. He says of these ideals: "Almost by definition they never can be realized in practice. But we can recognize whether we are moving toward them or retreating. The ideal of equality sums up much of

the uniqueness of American society to which I have referred already. This ideal, coupled with our adherence to the principles embodied in the bill of rights and our inherent belief in fair play and tolerance, makes a pattern which many of us have in mind when we use such phrases as 'the American creed.' In spite of the vast discrepancy between those ideals and the facts of life, I am convinced that we are not a nation of hypocrites. But unless we can demonstrate by collective action that we are making progress toward the goals implicit in our ideological pattern, we shall have difficulty maintaining the solidarity of the country. The morale of a nation, no less than that of any group of men or women, depends on agreement as to the ends for which all labor.

"It is no simple matter to move appreciably toward the goals in question — the historic goals of our unique society. Industrialization as well as size present us with problems of terrifying complexity, not to mention the unfavorable posture of world affairs. Our economy is based on private ownership and the profit motive; we desire to keep this economy flexible with as many competing units as modern industrialization permits, and with as much independence for both management and labor. Yet there are few who advocate today the old doctrine of 'hands off' private enterprise. The complexities of modern society have made the public a party to what once seemed a strictly private matter. The machinery of government is today meshed into our industrial life. The problem is to see how we can operate our private enterprises and our political institutions so that our society will be in fact competitive and thereby increasingly productive."

Correspondence

I

In the last preceding issue of MAIN CURRENTS, Dr. Reiser writes: "The wave we see moving over the surface of the water is composed of H_2O molecules that move in but one direction — up and down — *and yet the crest of the wave moves forward in a new direction (dimension), horizontally.*"

The individual particles in a wave move in a circular motion with a progression superimposed. I quote H. U. Sverdrup in "Oceanography" an article that appears in *Handbook of Meteorology* (edited by Berry, Bollay and Beers, McGraw-Hill, pp. 1030-1056): "The water particles move approximately in circles the radii of which decrease rapidly with depth. The particle velocity is not uniform but is greatest when the particles are near the top of their orbit (moving in the direction of wave progress), with the result that the particles upon completion of each nearly circular motion have advanced a short distance in the direction of progress of the wave. Consequently, there is a mass transport in the direction of progress of the wave. The *mass-transport velocity* (v') at the sea surface is expressed by the formula

$$v'_o = \left(\pi\frac{H}{L}\right)^2 \quad C = \left(\pi\frac{H}{L}\right)^2 \frac{c}{v} v$$

where v is the wind velocity." (Page 1052. On page 1051 there are two good illustrations showing the movement of water particles in waves.)

ROBERT P. WHORF,
Hillyer College

II

Mr. Whorf's analysis introduces a further refinement into the argument, but does not appear to invalidate the main point. He is correct in his description of what happens in the water wave. My own statement treats the circular motion of the water particles as from their centers, but since the radii change with depth, still another equation must enter the picture if we are to describe the process at any point except the surface where the macroscopic (emergent) effect is displayed. The important point is that in this functional relation the particles are organized in a unique way — a progressive wave passes over the surface, and this "wave" is a higher organization than that exhibited by the background out of which it arises. This "novelty" which emerges (completely predictable for future cases once it has been observed and mathematically described through the study of previous cases) is the "creative" element exhibited by the macroscopic pattern. I take it that Mr. Whorf's comments do not invalidate this idea.

OLIVER L. REISER,
University of Pittsburgh

STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 of MAIN CURRENTS IN MODERN THOUGHT published QUARTERLY at PORT CHESTER, NEW YORK for OCTOBER, 1946, State of NEW YORK, County of WESTCHESTER, before me, a NOTARY PUBLIC in and for the State and county aforesaid, personally appeared F. L. KUNZ, who, having been duly sworn according to law, deposes and says that he is the EDITOR AND OWNER of the QUARTERLY, MAIN CURRENTS IN MODERN THOUGHT and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semiweekly or triweekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher F. L. KUNZ, PORT CHESTER, NEW YORK, Editor F. L. KUNZ, PORT CHESTER, NEW YORK, Managing editor NONE, Business manager NONE. 2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) F. L. KUNZ, PORT CHESTER, NEW YORK. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) NONE. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. F. L. KUNZ, sworn to and subscribed before me this 5th day of OCTOBER, 1947, KATHRYN F. SNIFFEN, NOTARY PUBLIC FOR THE STATE OF NEW YORK, APPOINTED FOR WESTCHESTER COUNTY, (My commission expires MARCH 30, 1949.)

THE SOCIOMETRIC VIEW OF THE COMMUNITY

Jacob L. Moreno

The discovery that human society has an actual, dynamic central structure penetrating and encompassing all its formal and informal, underlying and peripheral groupings may one day be considered the cornerstone of all social science. The underlying and surface structures cannot be separated; every underlying structure partakes of the surface structure and vice versa. Sometimes relationships on the formal level are identical with those on the informal level, but more often they are not, and the result is social tension and stress. This central structure, once it has been identified, is either found or discernible in every form of human society, from the most primitive to the most civilized. It is present from the beginning and persists throughout the development of every society. It exerts a decisive influence upon every sphere of social action in which human interrelations are the core factor — in economics, biology, social pathology, politics, government, and similar divisions of social behavior.

By methods called "sociometric," the structure which has been designated above as "central" — which has always been operating in human society and will continue to do so — has been either isolated or demonstrated, and seems to have been established beyond any reasonable doubt. It has been subjected to exhaustive analysis and its component elements identified. These are distinguished by sociometrists as: the factor of *spontaneity*; the *tele* factor; the *social atom*; *group formations*, or *coteries*, which are intermediate between atoms and more inclusive configurations; the *psychosocial networks* and their patternings; the *sociodynamic effect*; the principle of *sociogenetic evolution*. Every other genuine method bent upon the study of social processes should be able to verify their existence.

These terms, on first reading. may sound strange, even fantastic, but their correspondence with everyday reality is instantly apparent once their meaning is comprehended. As it is the purpose of this article to direct the attention of adult educators, recreation leaders, social workers, high-school and college teachers to these newer insights into the nature of human groupings in the community, the realities which these terms describe will here be briefly indicated.

From the standpoint of professionals who work with human beings, such as educators and social workers, *group formations*, the third item on the foregoing list is of signal importance. Why this is so can be readily understood from the following summary sketch of the meaning of the terms.

A. Human beings develop a tendency to feel attracted to, or repelled by, most other individuals with whom they come in contact. Toward the remainder, they feel indifferent. This feeling, projected into distance — toward other persons — sociometrists term *tele*. The word is familiar, being a component of telephone, teleperceptor. It is the simplest current of feeling transmitted from one individual to another.[1]

B. Human beings are also endowed with a sense for *spontaneity*, a function that enables them to respond to a new situation or to make a new response to an old situation. This response — characterized by less or more spontaneity — must be more or less adequate if the individual is to survive. He is called upon to use it from the moment of birth. Although the genes may determine the majority of physical and mental characteristics, the new and plastic ways in which each individual combines and directs them can be attributed to spontaneity. Each individual's intensity of feeling, the increase or decrease of teleprojection above or below a certain level, is influenced by his spontaneity. Mutual interaction of the two creates the character of the interrelations between any individual and those with whom he comes in contact.[2]

C. Each human being needs other human beings to help him accomplish his ends. In respect to these ends — called *criteria* by sociometrists — he chooses as collaborators the individuals who attract him. Those who do not, he rejects. Likewise, other human beings choose or reject him as a collaborator. The sum total of relationships created by the feelings of like or dislike thus projected toward a human being by others and the relationships he establishes by virtue of the feelings of like or dislike which he projects toward them make up what sociometrists call his *social atom*.[3] This is the smallest constellation of psychological relations that we can comprehend.

D. When the social atoms of any number of individuals who have face-to-face contacts within a specific geographic environment — a community, a school, a factory, an institution — are charted by sociometric methods, a variety of different patterns of relationship emerges. Feelings of attraction among individuals show up as pairs, triangles, circles, chains, stars, squares, etc. Feelings of repulsion form similar patterns. These patterns are the *group formations* or *coteries* within the given environment. (Note: Rough approximations of such group formations are called autonomous groups by the Committee on Autonomous Groups.) The majority of these patterns are interlinked through individuals who belong to more than one coterie. Often, however, the chart shows one or more coteries isolated

[1] J. L. Moreno, *Who Shall Survive* (New York: Beacon House, 1934), pp. 158-164. Urie Bronfenbrenner, *The Measurement of Sociometric Status, Structure and Development* (New York: Beacon House, 1945, Sociometry Monograph No. 6). Jacob L. Moreno and H. H. Jennings, *Sociometric Measurement of Social Configurations* (New York: Beacon House, 1945, Sociometry Monograph No. 3).

[2] J. L. and F. B. Moreno, *Spontaneity Theory of Child Development* (New York: Beacon House, Psychodrama Monographs No. 8, 1944).

[3] J. L. Moreno, *Who Shall Survive*, op. cit., pp. 141-146. Helen H. Jennings, *Leadership and Isolation* (New York: Longmans, Green and Company, 1944).

from the balance of the community, forming cliques. In addition, also, there are always a number of individuals isolated from the community, belonging to no coteries or cliques. In order to visualize these coteries in a given community, we must close our eyes to the surface configurations which society presents: families, factories, schools, religious and racial groupings, and others. Underlying all of them are the intimate relationships of coteries and cliques, with their mutual interrelationships, whose functioning affects profoundly the behavior of the superficial configurations.[4]

E. The interlinkings between the coteries and the social atoms in a community fall largely into chain formations, the *psychosocial networks*. Individuals comprising certain links in the chains may be unacquainted with those in more distant links, but they exert an influence on others by indirection.

Through such chains, opinions and suggestions are transmitted from one part of the community to another. These networks do not correspond with any of the surface configurations presented by a superficial view of the community, yet they are the structures within which public opinion is formed and the prestige of general community leaders determined.[5]

Lack of space prohibits amplification of the meaning of the two other elements in the central structure of society — *sociodynamic* effect and the principle of *sociogenetic evolution*[6] — but enough has been said here to show that the findings and concepts offered by sociometry yield valuable new insight to practical workers in the fields where human relations are of paramount importance. It appears certain that in the light of these findings the terms applied to human groupings need critical redefinition. Such formations, for example, as social atoms and coteries appear to constitute the primary units of society, rather than family and neighborhood, as earlier sociologists held.

In the past, when the individuals composing a human society were thought of as passive agents — more or less immobile entities carried hither and thither by fate or circumstance directed by the will of God, or regarded as products of impersonal "cultural forces" — these underlying elements in the structure of society were not sought for. Since they do not overtly manifest themselves in society, a reagent — a catalyzer — is necessary in order to bring them into view. This catalyzer is the *spontaneity* of all the individuals in the given surface configuration: school, community, factory, or family.

Up to the advent of sociometric exploration of human society, the social scientist was beginning to come into contact with the life situations which were to be explored, but the subjects — the human material of the investigations — were left out of any participation in the study of their own life situations. This meant shutting off the spontaneity of the subjects, the most important source of information. In other words, the methods used to explore the subjects were those which had been successful in physical, chemical, geological, and astronomical exploration, where, metaphorically speaking, the spontaneity of the subjects studied did not enter into or disturb the experiment. But in human interrelations and in human society, the spontaneity of the individual is the alpha and the omega, the nexus, of every social situation and of the whole experiment.

The task of the social scientist is to invent adequate tools for the exploration of a chosen domain. On the level of human interrelations, this domain is made up of the interactive spontaneities of all the individuals composing it. Therefore, the task of the social scientist becomes the shaping of tools in such a fashion as to enable him to arouse the individuals to the required point of spontaneity on a scale which runs all the way to the maximum. *But individuals cannot be aroused — or only to an insignificant degree — by undynamic and automatic means.* The individuals must be adequately motivated so that the full strength of their spontaneous responses is evoked. Thus, the invention and shaping of methods for social investigation and the stirring up of the reactions, thoughts, and feelings of the people on whom they are used must go hand in hand.

Finally, knowledge of the central structure of human interrelations is essential to any general planning and reconstruction of human society. In fact, this was wellnigh impossible so long as the key structures remained hidden. Man believed that the regeneration of society was outside his province — even more so than the regeneration of the personality. Sociometry opens up the possibility of reconstituting human society, for the reason that the factor of spontaneity, the initiative and the immediate grasp of the individuals concerned, is made the essence of the method of exploration and of the investigation itself.

In a sociometric system, the essence of every process of planning is *total* and complete spontaneity, including all members of the group, not, as heretofore, the spontaneity of a small number of leaders or individuals chosen at random. The total sum of the individual spontaneities determines every direction of planning and selection of every key individual or leader to whom specific functions or responsibilities are to be entrusted. Thus all the functions and actions of the group — on every level between the periphery and the center — bear a harmonious relation to the core or central structure.

The new philosophy of human interrelations, *sociometry*, gives us a methodology and guide for determination of the central structure of society through the evocation of the spontaneity of the human subject-agents. These factors once located and diagrammed supply us with the basis upon which the planning of all the many facets and activities of society may be undertaken — from juvenile and adult education to supergovernments and world states.

[4] J. L. Moreno, *Who Shall Survive*, *op. cit.*, chaps. VII and VIII.

[5] *Ibid.*, chap. XIII. J. L. Moreno and H. H. Jennings, Sociometry Monograph No. 3, *op. cit.*

[6] J. L. Moreno, *Sociometry and the Cultural Order* (New York: Beacon House, 1943, Sociometry Monograph No. 1), especially pp. 303-308.

THE PSYCHOLOGY OF ARTISTIC REALIZATION

Eric W. Carlson

Modern esthetics has developed a psychology of realization radically different from the Aristotelian, the neo-classical, and the contemporary rationalistic expositions of the nature of artistic experience. The central tenet of authentically modern art and literature, as distinguished from what is merely contemporary, modernistic, or avant-garde, is the belief that no experience or fragment of experience can be snatched out of the stream of life and, as a framed moment, retain its significance. At least it is felt that the rational arrangement of material arbitrarily selected from the continuum of experience results in a serious distortion of the organic character and truth of the process called reality. For this reason the modern artistic mind seeks, by an intuitive penetration of the continuum, to comprehend the nature and quality of experience, rather than to manipulate it. Its work is founded on the empirical view of reality in process.

Before the "new" poetry, biography, and history, there had come into being a general belief in the "inspired" character of artistic experience — a feeling that the poet's or the artist's intuition reveals a deeper truth than either logic or rhetoric is capable of realizing. The early Romanticists were the first to profess, somewhat self-consciously, the doctrine of inspirationism, a doctrine drawn from their own first-hand knowledge of the dynamic subjectivism of artistic experience. Historically, the artistic mind was, in fact, the pioneer in discovering the inner truth of the experiencing self; and from this conception of art as the process of transforming felt impressions into realized values there developed a psychology of realization. In America the development of this psychology had the advantage not only of the stimulus and parallel to be found in the intuitionism of Coleridge, Shelley, Keats, Carlyle and Browning, but also of the impact and encouragement of such cultural forces as introspective puritanism, Quakerism, and spiritual individualism. In America the development of an intuitive mode of artistic thought was fully consonant with the distinctively non-rationalistic quality of American philosophy and culture. This fact could be substantiated by noting the repeated emphasis on non-logical, intuitive insight in the writings of Poe, Emerson, Thoreau, Hawthorne, Whitman, Emily Dickinson, William James, James Mark Baldwin, John Dewey, Dorothy Canfield Fisher, Ellen Glasgow, Robert Frost, and Archibald MacLeish.

But enough of history. The significant fact here is that modern esthetics, building on the testimony of the creative writer, has formulated a functional and descriptive analysis of the creative mind at work. According to this analysis, artistic realization originates in the vital interaction of mind and nature, of doing and undergoing, of sensory impressions and the artist's individuated perspective. In this complex of interacting forces, the sensible surface is never merely a surface, but a fusing of immediate sensory experience with "ideal" or "spiritual" meanings. The objective fact or sense quality provides the immediacy — the immediate as *is* — by an interacting of sensuous qualities with one another, these spreading and fusing through the organism until there results an impression vivid enough to evoke the "meaning" of the experience. In this way an impression gives rise to an idea, a feeling to insight, a sensuous experience to an experience of esthetic emotion and realization.

This dynamic realization, as opposed to passive recognition, is rarely instantaneous; it is more often a progressive unfolding of a meaning that gives depth and significance to the sensuous immediacy. Because time is required for subconscious understanding, inception is ordinarily followed by incubation. Then, at some unpredictable moment, the stage of incubation terminates in a sudden flash of insight or illumination; the impressions that have seemingly lain dormant below the level of ordinary consciousness have crystallized in an act of intuitive realization. This is the "inspired" moment when ideas become known. As Sara Teasdale once described it,

> Out of the fog of emotional restlessness from which a poem springs, the basic idea emerges sometimes slowly, sometimes in a flash. This idea is known at once to be the light toward which the poet was groping.

Such "evanescent visitations of thought and feeling . . . always arising unforeseen and departing unbidden" made poetry for Shelley "the record of the best and happiest moments of the happiest and best minds." For Emerson, too, "the gleam of light which flashes across his mind from within" was evidence of primary Inspiration, the mark of the self-reliant Man Thinking, who knows that "right thought comes spontaneously, like the morning wind . . ." Because "the poet works to an end above his will, and by means, too, which are out of his will," poetry may be defined as "super *voluntary ends effected by supervoluntary means.*" By "a pious reception" the intellect spontaneously intuits what it cannot understand by "the arithmetical or logical" principle; it becomes "constructive" and "creative" rather than merely "receptive" when "a certain control over the spontaneous states" gives the power of expression to revelation (intuition). Intuitive instinct is "a certain blind wisdom, a brain of the brain, a seminal brain . . . no newsmonger, no disputant, no talker" but "a taper, a spark in the great night." Inspiration is the spark of Instinct bursting into flame."

An impressive confirmation of Emerson's insight into the nature of creative thinking may be found in James Mark Baldwin's definition of esthetic or intuitive contemplation. Distinguished from both the prelogical or mystical intuition and discursive, logical thought, the higher intuitive thought is regarded as an act of the imagination, which fuses or integrates "the singular

and the immediate" with "the results of thought in the whole of experience" into "the larger and richer unity of immediate contemplation." "Although it is often counterfeited by eclecticism at the higher stage, as it is by mysticism at the lower," esthetic contemplation "lacks neither the generality of cognition nor the singularity of sentiment." It is neither the "rational intuition" of "pure reason" (Rationalism) nor an "intuition of the rules of practice," or "practical reason" (Voluntarism).

A more descriptive analysis is presented by Graham Wallas in *The Art of Thought*. In the four "stages of control" in the act of creative thought, the first is Preparation, a conscious and logical stage, during which the problem is defined with the aid of "remembered facts and words" that "make for a wider range in the final moment of association." Then follows an indefinite period of Incubation, in which voluntary abstention from conscious thought permits free subconscious growth of the mind's response to the felt or defined need. The third stage is Illumination, preceded by Intimation. On the margin of consciousness appears a vague impression of mental activity, "colored by a slight feeling of discomfort" and culminating in a sudden flash of realization. Because the deliberate effort to articulate the intimated ideas interrupts the emergence from within by destroying the delicate feeling tone (intuitive sympathy), "for the poet the finding of expressive words is an integral part of the more or less automatic thought-process indicated by Intimation." Intuitive control consists of inducing, prolonging, intensifying the intimation by a kind of receptive-active encouragement. Arbitrarily to attempt to seize upon the faint suggestion is comparable to trying to turn on a light quickly to see what darkness is like. But it is equally futile to let the association-train drift away of itself into mere reverie and forgetfulness.

The final phase of the thought-process is called Verification. During this stage conscious intellect and operational application check the value of the hypothesis or intimated suggestion; in artistic realization this is the stage of more or less critical control and appreciation. Although esthetic appreciation goes on simultaneously with artistic production, it is not until the work of art is embodied or externalized that the full and final verification is possible. After the music is composed on paper and in imagination, it must be played and perhaps altered before the composer himself "knows" whether it sounds "true." And so with the poem and the novel, the dance and the drama.

In the entire process of thought realization, the most difficult and most important stage to control is the Intimation-Illumination phase. The sudden (as if "inspired") flashing forth of an idea out of a penumbra of intimations is the culminating moment of illumination of insight. This "vague shading off from the foci into a field of increasing dimness" has given rise to the concept of the "field of consciousness."[1] In this field the focal center of consciousness is made up of the clear, the urgent, the immediate situation, whereas the marginal area of consciousness surrounding and suffusing the focal center acts as a context or background. But the "background" is not static; it is rather an active and eager disposition functioning as a larger system of meaning that interpenetrates and colors and gives meaning to whatever is uppermost here and now. This active background or organized system of meanings is a configuration of the mind; in a sense, it *is* the mind, a disposition of the self to further interaction with the world of experience. It is this contextual field that enables us to get meanings from our reading and that operates in seeing or hearing a work of art. The received sense impressions remain suspended and indeterminate until they interact with the field or larger system of meanings, which focalizes them into consciousness and "meaning."

To summarize, we may say that in the act of artistic thinking the artist's perspective functions as a predisposition, configuration or key in dynamic interpenetration with the data of experience; it gives content, depth, and reality to experience; the source and context of intuitive realization, it assimilates and cumulatively reconstructs the new by means of and in terms of its own already achieved system of values. Though it may be (and to some extent, must always be) unconscious, artistic realization matures out of subconscious incubation and conscious definition into an illuminative intuition of truth. This is what Thoreau meant when he wrote that "What was enthusiasm in the young man must become temperament in the mature man." And since such realization is, in the last analysis, a highly individual mode of interpretation, it is what Emerson meant when he observed that "Every man is a new method and distributes things anew."

[1] "One great mistake in the orthodox psychological tradition," writes John Dewey (*Intelligence in the Modern World*, p. 815), "is its exclusive preoccupation with sharp focalization to the neglect of the vague shading off from the foci into a field of increasing dimness, . . . the dim and total background of consciousness of every distinct thought."

A bibliography of further references follows: John Dewey, *Art as Experience*, pp. 29, 23-4, 52-53, 97-98, 121-122; Sara Teasdale, "How Poems are Made," in *New Voices*, ed. M. Wilkinson; Shelley, *Defense of Poetry*; R. W. Emerson, *Complete Works*, (Centenary Edition) XII, pp. 33-35, 65, II, 328-9, 335-6; Mark Baldwin, *The Genetic Theory of Reality*; John Dewey, *Intelligence in the Modern World*, pp. 813-816.

TRAFFIC

The green light
Lifts the imaginary barrier
Across the asphalt lane
And the flock of cabs
Leap forward,
Shouldering and bleating
Like hungry sheep
Racing to pasture.
(From *Stars and Atoms Have No Size*, poems of Science and Industry, by A. M. Sullivan, Dutton, 1946, $2.75.)

IN RECENT BOOKS AND CURRENT JOURNALS

In *The Reconstruction of Humanity*, by Pitirim A. Sorokin, Professor of Sociology at Harvard University (The Beacon Press. Boston, 1948, $3) the author traces our current historical and world problems back to the true nature of man, beyond physicalism, into a resource in the psyche, mind, emotions, soul, spirit, or whatever may be called that which marks him off from all other creatures. Starting with this magnificently bold and comprehensive sweep upward to a higher level, it may be possible to achieve intellectual and moral leadership for western nations, unless we have begun too late.

The book is Dr. Sorokin's own informal but comprehensive report on a study of altruism which he has been engaged in, along with many scholars, for some time, made possible by reason of the generosity of Mr. Eli Lilly. The final documentation will be decisively influential in the learned world, we expect, just as this preview will be powerful among an immense public. That much maligned man, who used to be in the street, and now is in the movie, tavern, automobile, bedroom, or subway, has stubbornly if blindly held out in his heart for a philosophy of society which left room for intuition, parapsychology, values, and the superphysical generally, in a framework of a natural, an intelligible cosmos. Here that man has the beginnings of such thinking, and every aspect of his life is nobly touched by the light. Now our souls and the creative spirit are about to be restored to real existence on campuses, not as vapors piously believed in, but as dynamism and source of all that matters, save the material world needed for our experience and growth. This book is thus especially important to church-related colleges, for it means that a modern validation of religion is being come at through a sociology which does not squander human gains, as so much sociology does when it follows anthropology into a poor physicalism.

Two pertinent matters which have long concerned the present writer may here be conveniently given purely personal expression.

If comparable joint studies were done in psychology, along lines of Gordon Allport's well known text, it would help to make the present inquiries much stronger in their eventual effect. Major data in high level psychology are, of course, referred to by Sorokin, and that is heartening. (Incidentally, and no doubt in vanity, we note that MAIN CURRENTS has been a useful source for understanding in the most contentious areas in Sorokin's course of thought into the human psyche.) But something much more powerful will be needed to enlighten scholars who are unfamiliar with the literature of high-level psychology.

When we who believe in the spirit are being so generously and stoutly defended it may seem ungrateful to ask for more. Yet we would add one more request. Something has to be done to draw together those sociologists who have small parts of the documentation which will give us a valid metric for society. Sorokin has afforded now the glowing outlines of man as a group which inheres in a domain superior to the physical, and he has traced man's structure as individual back to that domain. The final gift we need to reconstruct society in the economic sense is a metric which will enable us to re-establish *equity*. May we expect from the new Department of Social Relations at Harvard that they will call in the scattered workers in social metrics and so affect schools of business, departments of economics, and others, as to begin the reconstruction before chaos overcomes us?

G. L. M.

The Reach of the Mind, by J. B. Rhine (William Sloane Associates, New York, 1947, $3.50, illustrated) is a succinct account of a persistent and important inquiry into telepathy (extra-sensory perception) and related phenomena. It constitutes an indispensable summary record for the open-minded inquirer, done by the leading investigator in the field. For those to whom this subject is novel, a reading is recommended first of the remarks in American Scientist, Spring, 1948, by G. Evelyn Hutchinson, of Yale University, in his department entitled Marginalia, page 291, wherein he reviews the work of S. G. Soal. After that, for the scholar who is still a student, who knows how little we know, and how much we can now suddenly know and relate, the present account seems to us the very best volume with which he might begin self-enlightenment. The final chapter, 'Consequences for Relations Among Men' — consequences from the establishment of knowledge that the psychic field is as real as the electromagnetic — will come as a considerable shock to those to whom the facts themselves are fresh. Such readers might do well to read Sorokin, above reviewed, first.

The bearing of the finding of Rhine and his colleagues on education are quite literally impossible of exaggeration. Let us quote from page 143, where one important aspect of the learning process comes into the picture: the relation of belief to ability. What this all has to do with religion and science, as agreeable experiences, needs no exposition for the thoughtful. It should need little documentation. People learn to ride bicycles more readily when they believe they can. So too they learn to swim, aided by faith. The present reviewer once tried to teach a teacher of physical sciences how to swim. It was explained that tensing the muscles probably reduced the volume of water displaced, hence made floating less certain. The would-be swimmer understood that, but went on being as tight as a cataleptic all the same. He knew all about it, but he had no beliefs. Nor did he learn to swim that summer.

" 'He can who thinks he can,' is another familiar law of behaviour that has been reflected in ESP work.

Probably no research in parapsychology has more conclusively demonstrated the importance of attitude than the work of Dr. Gertrude Schmeidler, a psychologist at the College of the City of New York, with her 'sheep and goat' studies. The sheep are the subjects who, before they begin their tests, indicate on a questionnaire a more or less favorable attitude toward ESP. They recognize at least the possibility that ESP occurs. The goats are those who regard it as definitely an impossibility. In eight separate experiments, each involving a long series of tests, the sheep have scored consistently higher than the goats. The latter more often than not dropped below 'chance' in their averages. Figure 1 presents the deviation from 'chance' of the average scores obtained by sheep (or believers) and goats (or disbelievers)." (Dr. Schmeidler's comparisons of ESP scoring rates of believers (sheep) and disbelievers (goats) can be seen in the accompanying tabulation.)

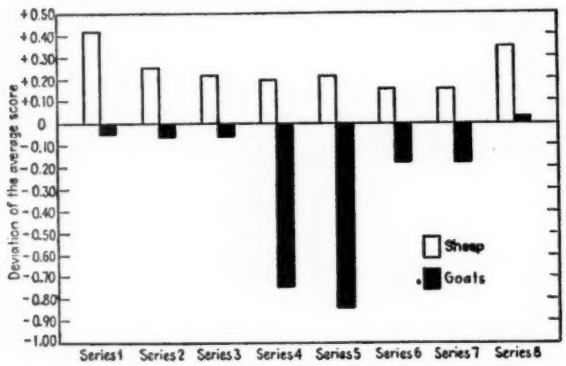


Figure 1

Parapsychology is the Cinderella of the sciences partly because it has not been properly framed in hypotheses and a philosophy which links it with other subject matter of learning. As a consequence important work of the past has frequently been lost to view. Hence the reader of the present summary by Dr. Rhine may not have in his mind any of the documentation required, and which here, necessarily, is only sketchily provided. The bibliography provides some older books as correctives, but a current work may be even better: *Mind to Mind*, by Rene Warcollier, Creative Age Press, New York, 1948, $2.50, illustrated. This is the substance of a lecture at the Sorbonne in 1946, reporting upon careful and sustained experiments in image transmission.

F. L. K.

Yankee Teacher, The Life of William Terrey Harris, by Kurt F. Leidecker (The Philosophical Library, New York, 1946, $7.50). Our limited space has restrained us from noticing hitherto the publication of Dr. Leidecker's comprehensive life of Harris. It comes at a time when the role of education and the philosopher in higher education is at last getting proper attention from government, industry, and other groups. "In his 1882 paper on 'Do the Public Schools educate children beyond the position which they must occupy in life?'," says the author of Harris (p. 541), . . . "he maintained that if you exclude the humanities in the schools, you invite socialism and communism and allow the mind to become 'fly-blown with crazy political and social theories destructive of the state'." Harris, who was familiar with the principal works of Marx, could see the menace in those men of affairs of his time who could not see that the only defense of what is priceless in our heritage must come from education. Time runs out on us now to do what we must do to rally the forces of a new movement toward a good philosophy in education so that we shall have throughout our school and college system the means to achieve truly American ends. Fortunately since Harris lived and worked, these means are at hand, and what he saw to be necessary we see now can be realized: a general and valid philosophy of the good life in freedom to support the ideals we are coming now to repeat with diminishing effect.

Harris was a mid-West outpost of the Concord group of philosophers who did so much to keep high the standards of higher education. The Alcotts and Emerson had to defend the transcendental with such weapons from comparative religion, the literature of the ancients, and the perception of Goethe and Hegel. They were favored by their milieu, and their task eased by being lightly geared into the educational system. Harris was later Commissioner of Education, he had to translate into use the ideal which was elusive enough for those who could address themselves to it without regard to parents and teachers. Dr. Leidecker's account of this valiant, life-long, undaunted embodiment of the great cause is particularly timely and important to those of us to whom falls the task of documenting what could then be only believed.

F. L. K.

The Searchers, by Gustaf Strömberg (David Mackay Co., Philadelphia, 1948, $3) and *The Strange Story of the Quantum*, by Banesh Hoffmann (Harper and Brothers, New York, 1947, $3) are examples of the two variants of style in exposition of the meanings of modern science which seem to us to be both unfortunate, though the content and the actual exposition are admirable.

Dr. Strömberg, one of the clearest expositors of many aspects of modern science, has put his discussion of several important elements of modern physics, of biology, and of psychology and religion, into the mouths of people who meet and talk about this. The central figure is an emigrant Russian, and the tale has a current sociological application. The writing is simple, and unstrained, and Strömberg never fails to bring us very close to the religious realities which lie behind. But a reading of his last chapter, which is straight

Strömberg, shows that he is a hundred-fold more interesting and stirring than his puppets can ever be. In fact that chapter is invaluable. It is to be hoped there will be more of this, and much more of the biological and psychological link-elements, for this author is a master of the physical science, of clear exposition, of penetrating thought.

Dr. Hoffmann, on the contrary, invents no *dramatis personae*, but he writes gaily, even jocularly, in order to maintain attention. It may be doubted whether this helps the reader. Anyone who wants to understand the quantum theory, surely would prefer to have it expounded and its history reviewed, without disconcerting pokes in the mental ribs. Quanta are not funny, they are fascinating. We really do need to understand them, and Dr. Hoffmann has rare ability to make it simple for us. Despite the distraction of the style, here is a volume that traces the revolution in micro-physics, mentioning the great names, identifying their contributions, bringing us up to date. Even most important, we are not led to believe we understand what has actually eluded us. It is a rare achievement, and will be widely appreciated. Let us hope that a new edition will be required early, and that slapstick humor (which tells us that "electrons are smeared," or that Einstein was not "the sworn foe") will be replaced by phrases which suit the remarkable serious abilities and the penetration and acute selectivity which the author has brought to bear for the reader's benefit in a field closed to him, if he cannot have such talented guidance. E. P. J.

EMMANUEL SWEDENBORG, Scientist and Mystic, by Signe Toksvig (Yale University Press, New Haven, 1948, $5). At last the life of the celebrated Swedish scientist and seer has been written in such a manner that the subject comes alive out of his own literary cerements and the mausoleum in which devotees have too long enshrined him. A sense of proportion — or, what is better, humor — and scientific method are Miss Toksvig's aids, and thoroughness is her standard.

The first half of this definitive work prepares the reader for the crisis he must expect if he has been unfamiliar hitherto with the field of parapsychology as an area of serious and effective investigation. From page 180 forward the whole question of Swedenborg's seership is revolved before the reader, in two critical chapters, fifteen and sixteen. Thereafter the truly masterly re-interpretation of Swedenborg's reports of his visions follows, and most naturally, through a hundred pages. We owe the author a considerable debt for scholarship which has transformed the tedium of sources into a revelation which we can apply to Blake and Walt Whitman and every other venturer, oriented toward "the many-splendored thing," who has left us literary records of his struggle to that light. The present volume may well mark the beginning of a new and wiser age in biographies, when intuition, mysticism, insight, and moral courage to live by them, will not be condemned in the courageous few by the ignorant many.

The reader will find herein a valuable incidental gift to his stock of learning, if he needs it. Miss Toksvig has, perhaps for her own satisfaction in part, brought the very latest reports and terms from parapsychology to bear on her subject. This important field, thus screened by a competent inquirer, comes into focus on its own account. The references in these portions are of primary value and wide scope. We are honored that our own pages have contributed a significant item in a long series of passages and names which are found lodged boldly, in support of Miss Toksvig and her heroic yet so human subject, on the new frontier of knowledge. F. L. K.

The President of the University of Toronto (Sidney Earle Smith) is the Chairman of an institution which has not proper counterpart now in the United States, the Canadian Youth Commission. *Youth Speaks Its Mind*, by Blodwen Davies (Ryerson Press, Toronto, 1948, $2.50) is the most ambitious of the nine publications of the Commission, the others dealing specifically with Youth and Jobs, Challenge to the Educators, Religion, Health, Organization, Recreation, Citizenship, Marriage and the Family — all done from the sources, youth.

Miss Davies provides reading which we, south of the longest border of peace, positively need to read as a corrective to the policy we have of buying our way to a compromise with youth which fought the war and now is about to be forced to fight another. That way lies destruction for democracy, and if we are important to Canada, perhaps the Commission should send its publications to every leader here to the south, who can take heed. Particularly this present volume is central, for it gives not only a good account of the development of the Commission since 1943, but it starts where it should: with the creative question. That is number one for Miss Davies, and it is number one for the world. The bleating about spirituality which numbs our minds comes from those who do not know that the creative life, liberty, spirit, uttermost truth, and the like are the issue upon which all else depends. Not only does this volume begin there, it comes back to "The Lodestone of the Spirit" toward the end, and concludes with a chapter which urges us to see that we shall not get on to the future by fearing it. Significantly this is entitled "The bow of burning gold," and Whitman's words set the theme.

Peace Demands Action, edited by Leland D. Case (Rotary International, Chicago, 1947, 25c), is a useful collection of articles from The Rotarian, on opportunities for men of goodwill to eradicate the cause of war. The writers constitute a list of forty-five celebrities; among them Trygve Lie, Paul G. Hoffman, Andre Maurois, J. Edgar Hoover, J. R. D. Tata are examples of the variety. How is it that when many thousands of men are agreed on the need for peace they cannot get it, even though they are some of the most competent executives, best business men, writers, and the like, and

they are avowed exponents of goodwill? The answer is getting clearer all the time: they do not have the know-how, which means they do not have the right education. This valuable little handbook comes from an editor who is sensitive, and from writers whose high purposes and sincerity are a matter of record. They are in touch not only with other members of the international Rotary movement, but with immense economic, social and political resources. Many are men of action. They want peace, and the world wants peace. Peace demands action, but what action? The answer to this is at a deeper level than past education has opened up. We do not expect the Rotary movement to dig that deeply, for it is not an educational but informative movement. Education requires us to examine our basic ignorances and to conform to valid learning. These are not Rotary Club purposes. Information and good will are valuables of a high order, but they cannot lead by themselves to the action that will bring peace. The Rotary Clubs, thus defined, are seen as institutions of much potential power aware of a task that must be performed by others. Is it reasonable to expect that its membership, as individuals, should support with all possible strength, those who can effect in education the action which will bring peace? J. A. S.

THE NATURE OF SCIENTIFIC THEORY

M. Avramy Melvin

The following is a brief synoptic description, from the point of view of one working scientist, of the process of scientific theory in its development. Clear, concise definitions (i.e., descriptions in terms of other more familiar concepts) of the key concepts, which naturally occur in any such discussion of the nature of scientific theory, are also attempted. It will, of course, be understood that the set of definitions by the writer is only one of several possible consistent sets. Uniqueness of meaning is desirable for clarity.

Accompanying this article is a diagrammatic representation of the scientific process as we view it.

Science is built upon an intelligible, orderly description of human experience. The facts upon which science rests can come only from human experience, and any conclusions to which science may point can be judged (scientifically) only on the basis of human experience. In addition to its foundation in experience, science includes the fruits of inspired insights by which the great principles of simplicity and harmony, behind what is seen, have been divined. If by the term *experience* we mean not only perceptions of the five senses, we can say simply: *science is the ordered description of experience.*

Experience gives rise to a large number of facts. An *experiment* is a directed, selective experience. One must beware of an excessively narrow selecting process. This may turn out to have been a basic reason for the impasse reached in modern physical theory.

Experiments supply a body of *data*, or symbolized and recorded facts. *Laws* are inductions or generalizations of these facts. A law can obviously be a generalization of only a finite number of facts arising from experiments. A law, however, amounts to more than a sum of these individual facts. It seeks to interpolate between the known facts and, in doing so, to make the range of our predictable experience continuous.

Laws in this empirical sense are obviously of great value, but by themselves they are unsatisfactory in that they do not give our description of experience a great coherence or order. A creative mind in the light of existing laws may arrive at a *hypothesis* (assumption) from which a whole group of possible empirical laws may be deduced by logical methods. If these consequences are verified we may title the hypothesis a *principle*. Thus a *theory* consisting of one or more *principles* (i.e., verified hypothesis) is formed and amounts to a generalization of a body of empirical laws. A theory must obviously satisfy empirical laws already existing to be accepted. The grandeur and true test of a theory, however, lies in its ability to *predict* new relationships which have never been studied before. If directed selective experiments prove (to the world's authorities) that the theory's predictions are true, the theory is a success (for a time). If it fails, it falls under immediate suspicion and fades from the attention of men.

Thus, referring to our diagram, we see how science originally grows out of selective experience and how, after constructing an elaborate system, must in the end return once again to selective experience to prove the validity and consistency of the system. Even more, to serve humane and spiritual needs, to add vigorously to the living store of beauty and truth without which life fades into a dry shell, science must ever anew confront yet unordered aspects of general human experience. There must be a perennial *facing of the facts* however "superstitious," "mystical," or "irrational" these empirical realities may appear at first view.

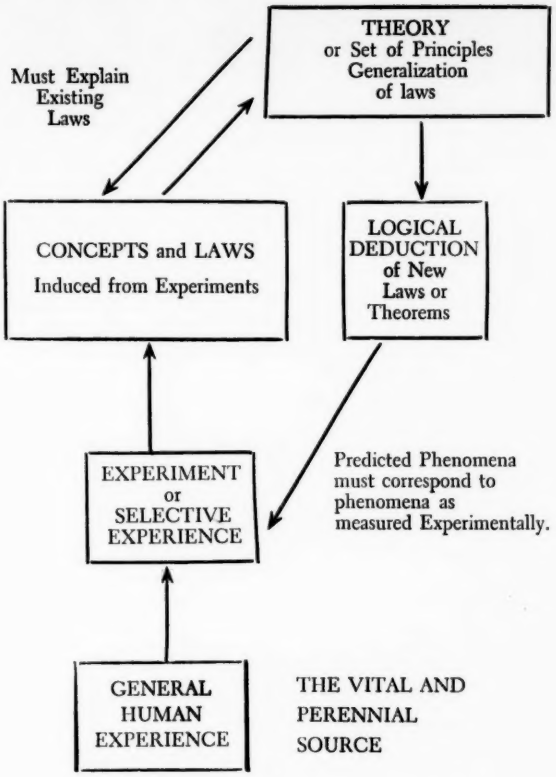
A successful theory does not have quite the same sense as a set of empirical laws. A generalization of empirical data should remain correct within the probable error of the operations as long as human experience remains reproducible. A theory is not quite so immortal. Given a set of empirical laws there are an infinity of theories which could generalize them. Theories are not really as arbitrary as this, however, since there are two requirements which limit an acceptable theory. (1) It must be able to predict new relations. (2) It must be "simpler" than any alternative theory present. There is a danger in the latter criterion in that the decision as to what is "simple" may be made by arbitrary (though perhaps unconscious) authority and may even have the effect

of withholding attention from embarrassing facts of observation. One finds many unfortunate instances of this in the history of human thought.

We now come to what seems to have been a (well-nigh unconscious) guiding principle in the history of scientific thought, what we may call the *Tendency to Increased Abstraction*. In seeking to formulate a hypothesis with which to generalize a group of phenomena, we may either use *concrete concepts* (i.e., close to direct experience) with the result that the statement of our hypothesis becomes complex; or by making use of more *abstract* concepts, we may be able to use an extremely *simple* statement as our hypothesis. Thus "concrete" and "complex" on the one hand, and "abstract" and "simple" on the other, go together. The term *concept* as here used implies a generalization of a characteristic that appears to be common to a class of objects or phenomena. By *increasing abstraction* in concepts we imply that the generalization appears to be drawn less and less from an immediate (to sense perception) characteristic of the class in question. For example, *size* or extension is a relatively concrete concept, while *force* is a more abstract concept, and *energy* a still more abstract concept. By a *simple statement* is meant a concise statement as opposed to a long, involved statement, which we define as *complex*. This definition, therefore, says nothing as to which of the two statements can be most readily comprehended by the normal mind, but merely has to do with its form of presentation. Now, experience and theory at this time apparently present us with the possibility of choosing only between *complex statements with concrete concepts* or *simple statements with abstract concepts*. In accord with what we have called the "tendency to increased abstraction" the latter choice seems to be winning out in science — perhaps because of the peculiar faculty of the human mind for working with complex mental constructs, once assimilated, as though they were single concepts. We may ask: Must our concepts inevitably become more abstract for an increasingly successful description of Nature? The answer is probably *No*, since a radically new way of looking at Nature may lead to a simplification on all fronts.

Finally mention should be made of the tools of scientific theory. In the first place we have the physical concepts themselves. In the second place there are those tools (symbolic or mathematical) which allow us to map our concepts and their relationships and laws in convenient and suggestive ways. We may classify these various *maps* of physical theories given by Mathematics into the two groups of *Algebras* and *Geometries*. It is clarifying to analyze for each branch of physical theory the algebras and geometries which are used to represent it, and the essential reasons for their suitability.

Algebras and geometries are systems of abstract symbols (what the mathematician calls "undefined" elements) obeying a set of consistent rules of operation. These and a certain consistent (generally small) set of assumed relations between the undefined elements constitute the *axiom* — or *postulate* — system for the



THE VIRTUOUS CIRCLE BY WHICH SCIENCE GROWS

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algebra or geometry. From the basic postulates many other relations between the undefined elements are logically deducible. These constitute the *theorems* of the algebra or geometry.

The distinction between an algebra and a geometry, in the modern highly general view, is not easy to make. The methods of an algebra tend to be more analytic and algorithmic, those of a geometry more synthetic and intuitive. When the concept of *limit* (which we shall not define here) is conjoined with that of an algebra or a geometry we obtain the various branches of mathematical analysis and differential geometry which constitute the codes and maps of physical science from Newton to Einstein.

The idea of the counterposition of *complex-concrete* descriptions to *simple-abstract* descriptions of reality is genetically related to the discrimination between "extrinsic simplicity" and "intrinsic implicity" in M. Jean Nicod's *Foundations of Geometry and Induction*. (English translation, Harcourt Brace and Co., New York, 1930). I should also like to acknowledge my indebtedness to my former student, Mr. S. M. Keeny, for help in concise formulation of the foregoing ideas, which it was my custom to present every year in an introductory lecture to a class in Thermodynamics.

M. AVRAMY MELVIN

THE CURRENT COLLEGE CONTROVERSY

Stephen M. Corey

In the March, 1947, issue of the *Bulletin* of the Association of American Colleges, pages 175 to 188, is found the full report of an address delivered by Professor Stephen M. Corey of the University of Chicago, before the Association of Northern Baptist Colleges in Boston, on January 16th last. Under the heading "The Current College Controversy," Professor Corey provides a valuable and widely read review of the present situation which has been developing between two large groups, "student centered" and "content centered" educators. We complete here an abstract published, with permission of author and editor, in part in our last issue, using Dr. Corey's own words throughout. He concludes:

A final difference in point of view is the way each of these opposed groups defines an appropriate college population. The faculty members who spend most of their time developing a curriculum of studies to be learned by all students are apt to talk at length about those who *should* go to college, not those who *do* go to college. The "student centered" group believes that within very wide limits it is the responsibility of the college to develop a curriculum for those students who come to it. On the one hand it is contended that the students should adapt to the curriculum, and on the other that the curriculum should be adapted to the students. (Here the writer makes plain that students learn what they *practice*. He then continues:)

The question, of course, is not: "Are students getting practice in college that *may* be useful as they live in college and later?", but rather: "Are students practicing in college activities which *give every promise* of being specifically useful in the life they lead while in college and afterwards?"

It is my conviction that what goes on in "student centered" colleges, is more nearly in harmony with what we know about the way people actually learn. The reason is that in such colleges students tend more constantly to practice what they should be learning. The arguments of the Great Books enthusiasts, however, are always provocative in both senses of the word. Any sane man must value the Great Books — at least those he has read — and realize that a careful study of them may contribute much to an understanding of today's problems. A Great Books curriculum for all young people needing a general education, however, leaves much to be desired. Mr. Van Doren's statement that "a classic is always fresh, vernacular, sensible and responsible" takes no cognizance of the fact that most of these classics were written at a time when only the intellectually elite could read. Those who claim, like Mr. Van Doren, that the classics can be read with great profit by everyone are disdaining the only court of appeal that makes sense, namely, the normal young people who have tried to read the books. Plato and Cicero and Ptolemy and Descartes and Hume and Freud and Bentham and Marx and Veblen were not writing for typical, callow boys and girls in their late adolescence. They were writing primarily for their peers and exclusively for mature adults . . .

A general education that counts, and by this is meant a general education that influences the way young people live, not only the way they talk, must result from their attempts to do something about situations that matter to them. If in the course of their work on problems they think are important young people go to the Great Books for the help these books can give, reading them will be educative. But to try to read the Great Books before having had experiences that give personal significance to the problems with which the Great Books deal is a relatively fruitless activity . . .

Adolescents who come to college for a general education are interested at various times and in various degrees in a long list of problems to which the typical college rarely if ever gives any direct attention. When these intimate, and dominating, and personal concerns are completely neglected, the young people proceed at once to develop an extra curriculum which gives them opportunities to do what *they* think is significant. This extra curriculum often takes more of their time than does the real curriculum. Judging again from the testimony of many young men and women who have been graduated from American colleges, the lessons they learned in their extra curriculum activities are more lasting and influential than were those that they learned in the college classes. This is true despite the fact that because the extra curriculum is rarely subject to the influence of mature men and women who know a great deal about man's relationship to himself and to other men and to his physical world, it is a chaotic experience. Faculties in "student centered" colleges are disposed to learn some lessons from the extra curriculum rather than to become apoplectic because it exists. They seem to realize that unless serious attention is given by the college to the personal problems and worries and interests of young people, the more scholarly and academic achievements are apt to be inconsequential and consist largely of verbal exercises engaged in to meet formal requirements expressed exclusively in verbal terms.

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